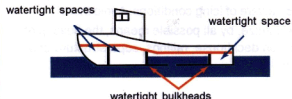


## DEFINITIONS

**Watertight** - If water enters a space due to damage, the water is not able to leak into neighboring spaces.

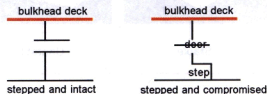
**Watertight Bulkhead** - A bulkhead that does not allow flooding waters to move between spaces.



**Bulkhead Deck** - The uppermost deck to which watertight bulkheads extend.



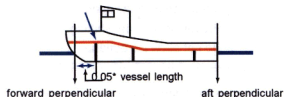
**Stepless and Intact Bulkhead** - Strictly vertical bulkhead with minimal pipe penetrations and **no** doors.



**Collision Bulkhead** - Bulkhead designed to minimize spread of damage due to collisions in the bow area.

Shall be stepless and intact.

collision bulkhead

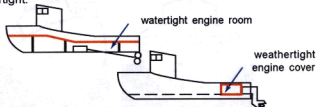


**Weathertight** - Water and weather is prevented from entering a space, but the space is not watertight.

*Example:* A house is weathertight, but not watertight.

## WATERTIGHT & WEATHERTIGHT INTEGRITY

- \* Maintain watertight bulkheads watertight.
  - Minimize number of penetrations.
  - Penetrations must be watertight.
- \* Discharge piping penetrating the hull shall be fitted with positively closing check valves.
- \* Inlet piping shall be fitted with positive closing valves located as close as possible to the sea chests and shell plating.
- \* Deckhouse openings shall be fitted with weathertight doors.
- \* Doors shall be steel or equivalent material permanently attached to the bulkhead.
- \* Weathertight doors shall open outward and be fitted with gasket seals and a minimum of two dogging devices in addition to hinges.
- \* All emergency doors shall be quick acting.
  - Each machinery space containing propulsion, auxiliary power, fire or bilge pumping equipment shall be enclosed by watertight bulkheads.
  - Access to adjoining spaces below the bulkhead deck shall be by normally closed quick acting watertight doors.
  - Watertight doors shall open outward from the machinery space.
- \* Propulsion machinery spaces above the bulkhead deck shall be weathertight.



## SUBDIVISION

- \* Collision bulkheads.
  - Be stepless and intact up to the bulkhead deck.
  - Only minimum pipe penetrations are permitted. Penetrations shall include valves operable from aft of the collision bulkhead and above the bulkhead deck.
  - Pipe penetrations shall be as far inboard and high as practicable.
  - No doors or scuttles permitted.
  - Located at least 5 percent of the length aft of the forward perpendicular.
- \* Watertight bulkheads - Install them where appropriate and maintain them watertight.

## VESSEL CLEANLINESS

- ✓ Keep bilges clean and free of debris.
- ✓ Protect any exposed wiring used for bilge pumps and dewatering devices.
- ✓ Maintain ability to access bilge pumps and dewatering devices.

## CREW TRAINING

Conduct prior to getting underway:

- ✓ Dewatering equipment familiarization and use
- ✓ Pipe patching
- ✓ Hole plugging
- ✓ Putting on survival suit
- ✓ Abandon ship procedures

Conduct semiannually:

- ✓ Importance of watertight integrity
- ✓ Importance of vessel cleanliness
- ✓ Importance of keeping vessel ice free
- ✓ Importance of eliminating free surface

## PRUDENT SEAMANSHIP RULES OF THUMB

- ✓ Be alert to all the dangers of following or quartering seas.
- ✓ If excessive heel or yawing occurs, reduce speed as a first precaution.

Be aware of your surroundings.  
Look out after your crew.

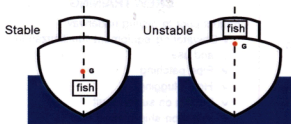
## QUICK TIPS:

- ✓ Maintain your vessel water and weather tight.
- ✓ Maintain vessel subdivision.
- ✓ Train your crew before getting underway.
- ✓ Demand good housekeeping.
- ✓ Look out after yourself and your crew.

## CENTER OF GRAVITY RULES OF THUMB

- ✓ Keep all weights low in the vessel.

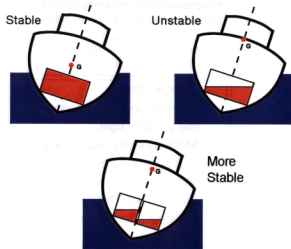
Adding weights high on vessel raises the Center of Gravity. Removing weights low on a vessel also raises the Center of Gravity.



## FREE SURFACE EFFECT

Free surface reduces stability, leaving your vessel more susceptible to capsizing.

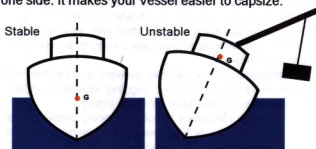
- ✓ Minimize width of holds, fuel tanks and live bait wells.
- ✓ Keep holds and tanks completely full or completely empty when possible.
- ✓ Do not permit water to collect on your deck. KEEP YOUR FREEING PORTS OPEN.



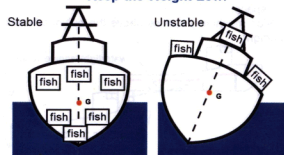
## LOADING AND UNLOADING OPERATIONS

- ✓ Limit the duration of over the side lifting operations.

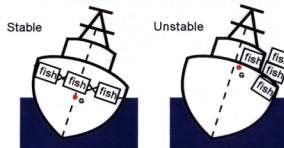
Suspending weights above the water and over the side is like adding that weight at the head of the boom. This causes the Center of Gravity to rise and shift to one side. It makes your vessel easier to capsize.



## Keep the Weight Low.



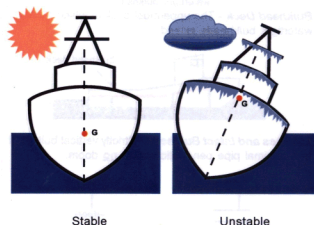
## Prevent Loads from Shifting.



## ICING RULES OF THUMB

Ice buildup adds a great deal of weight up high on the vessel and causes the Center of Gravity to rise. It makes your vessel easier to capsize.

- ✓ Be aware of icing conditions. Avoid them.
- ✓ Minimize, by all possible means, the buildup of ice on deckhouse, railings, superstructure and outriggers.



## QUICK TIPS:

- ✓ Keep weights low.
- ✓ Minimize width of tanks and holds.
- ✓ Keep freeing ports open.
- ✓ Prevent loads from shifting.
- ✓ Do not allow ice buildup.

This information provided by the U.S. Coast Guard and the Commercial Fishing Industry Vessel Advisory Committee